

Awards for Innovation

Final Report

Title of Research Study: The Efficacy of Interactive Learning Activities Using the SMART™ Board with Learning Disabled Students in Illinois Agricultural Education Programs

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1. Strand Project Addressed

The project addressed the strand of curriculum development initiatives for CTE, with the purpose of teaching pre-service agricultural education teachers interactive methods of instruction utilizing SMART™ Board technologies to meet the educational needs of learning disabled students in the secondary agricultural education classroom.

2. Overview of Research Study

SMART Board technologies and interactive teaching methods have proven effective for Learning Disabled (LD) students in both language (Campbell and Mechling, 2008) and math (Robinson, 2004). Hands-on learning and problem solving have long been a hallmark of agricultural education. Coupled with SMART™ Board technologies, an innovative and interactive approach may address the needs of the LD student in Illinois agricultural education classrooms.

This project was based on the concept of inclusion. Inclusion is described as a philosophy that draws students, families, educators and schools together to foster an environment that incorporates acceptance, belonging and community (Bloom, Perlmutter and Burrell, 1999).

It was originally proposed that pre-service teacher training in the use of interactive teaching methods designed for SMART™ Board technologies would be given to university students through the required course, AGSY 311B (Programs in Agricultural Education). In the following semester, each student was to employ the methods at his/her student teaching practicum site, an assigned cooperating high school in the Delta Region with SMART board technology. However, due to a misunderstanding with the Human Subjects Review Board at Southern Illinois University, training in SMART technology use could not be given to pre-service teachers in time for their student teaching practicum.

The revised target population for this pilot project was the 2008/2009 secondary agricultural education students enrolled in Introduction to Agricultural Education courses at six cooperating high schools (N=77).

One unit of instruction on poultry was developed and taught using interactive methods and SMART™ technology in a manner appropriate to the LD student. A pilot test of the re-designed instructional unit, with pre- and post-tests, was conducted at an agricultural program not included in the study population, and appropriate revisions made to the instruments.

Students from the six participating programs were randomly assigned to treatment and control groups. Pre- post-tests were conducted in this quasi-experimental pilot study during the month of May, 2009, to assess the effectiveness of the interactive methods using SMART™ technology.

3. Objectives/Research Questions

- a. To develop an interactive unit of instruction for use with SMART™ Board technology.
- b. To compare/contrast the gain scores of students taught using the interactive, technology-enhanced curriculum with those of students taught using the traditional curriculum.
- c. Disseminate findings from the research of this pilot project through a presentation at the 2009 Connections Conference and to agricultural education teachers in southern Illinois.

4. Project Deliverables

a. Unit of Instruction - The deliverable products included the development of interactive, technology-enhanced activities using SMART™ technology for a unit of instruction in agriculture. Each lesson contained objectives, interactive learning activities, and evaluation instruments to increase learning and retention for the LD student. A poultry unit comprised of three lessons addressed the following topics:

Lesson 1 – The poultry industry

Lesson 2 – Nutrition and digestion

Lesson 3 – Embryology

b. Website - All interactive SMART lessons were made available on a newly designed website and on CDs.

c. Professional Workshop – A workshop was presented to secondary CTE teachers and post-secondary professors at the 2009 Connections Conference in Springfield, Illinois. The theoretical concepts supporting the use of interactive SMART technologies for classroom instruction, and an interactive demonstration were presented.

d. Research Paper Presentation – The findings will be disseminated through a regional or national research conference during the 2009/2010 academic year. (Pending final data analysis).

e. Research Journal Article – The findings will be further disseminated through the writing and publication of a research article. (Pending final data analysis).

References

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